

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ART UNIT: 1796	<b><u>CERTIFICATE OF MAILING</u></b> <b><u>UNDER 37 C.F.R. § 1.8</u></b>  DATE OF DEPOSIT: August 13, 2010  I hereby certify that this paper or fee (along with any paper or fee referred to as being attached or enclosed) is being submitted on the date indicated above via: <input checked="" type="checkbox"/> EFS Web <input type="checkbox"/> facsimile to _____ <input type="checkbox"/> the United States Postal Service with sufficient postage as first class mail addressed to: Mail Stop _____, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.  /brendawiseman/ <hr/> Brenda Wiseman
EXAMINER: Patrick Dennis Niland	
APPLICANT: Phillip C. Cagle	
SERIAL NO.: 10/772,792	
FILED: 02/05/2004	
CONFRM. NO.: 5227	
FOR: POLYMER COLLOID- CONTAINING INK-JET INKS FOR PRINTING ON NON- POROUS SUBSTRATES	
DOCKET NO.: 200316243-1	

APPELLANTS' REPLY BRIEF UNDER 37 C.F.R. § 41.41

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450  
Mail Stop Appeal Brief – Patents

Sir:

Appellants submit this Reply Brief in response to the Examiner's Answer mailed on June 14, 2010, in connection with their Appeal Brief filed on March 17, 2010 which was filed in response to the final rejection of the Patent Office, mailed December 9, 2009, in the above-identified application.

STATUS OF CLAIMS

Claims 12-16, 18, 23, 25-30, 32, 37, and 39-44 remain pending and have been rejected. Claims 1-11, 17, 19-22, 24, 31, 33-36, and 38 have been canceled. The claims on appeal in this application are claims 12-16, 18, 23, 25-30, 32, 37, and 39-44.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The issues presented for review are:

- a. whether claims 13-14 and 27-28 are unpatentable under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement;
- b. whether claims 12-13, 15-16, 23, 25-27, 29-30, 37, and 39-44 are unpatentable under 35 U.S.C. § 102(e) as being anticipated by U.S. Publication No. 2004/0063807 to Wang et al. (hereinafter “Wang”) in view of evidence given in Hawley’s Condensed Chemical Dictionary (hereinafter “*Hawley’s*”);
- c. whether claims 12-16, 23, 25-30, 37, and 39-44 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Wang in view of evidence given in *Hawley’s*;
- d. whether claims 12-16, 18, 23, 25-30, 32, 37, and 39-44 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Wang in view of U.S. Publication No. 2004/0229974 to Miyabayashi (hereinafter “Miyabayashi”);
- e. whether claims 12-15, 18, 23, 25-29, 32, 37, and 39-44 are unpatentable under 35 U.S.C. § 103(a) as being obvious over U.S. Publication No. 2003/0069329 of Kubota et al. (hereinafter “Kubota”) in view of *Hawley’s* and either U.S. Patent No. 6,536,890 to Kato et al. (hereinafter “Kato”) or U.S. Patent No. 5,207,824 to Moffatt et al. (hereinafter “Moffatt”); and
- f. whether claims 12-15, 18, 23, 25-29, 32, 37, and 39-44 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kubota in view of *Hawley’s* and either Kato and Moffatt and further in view of U.S. Patent Publication No. 2004/0055508 of Miyamoto et al. (hereinafter “Miyamoto”) or Wang.

ARGUMENT

A. Examiner's Answer

The following numbered paragraphs summarize the Examiner's rejections and the Examiner's response to the Appellants' arguments. The following sections B, C and D address those arguments that have been presented by the Examiner in response to the Appellants' previous arguments. The Appellants refer the Board of Appeals to the Appeal Brief for a more complete summary of Appellants' positions, as supplemented by the present Reply Brief.

1. In rejecting claims 13-14 and 27-28 under 35 U.S.C. 112, first paragraph, the Examiner alleges that the present claims fail to comply with the written description requirement. Specifically, the Examiner alleges that the amended endpoint of "from 0.1 wt%" constitutes new matter. Examiner's Answer, page 4.

2. In response to Appellants' arguments that the present specification provides subranges including the presently claimed range, the Examiner responds that the support relied upon by Appellants references "additional co-solvent" not "non-volatile co-solvent of the instant claims *per se*." Examiner's Answer, page 49.

3. In rejecting claims 12-13, 15-16, 23, 25-27, 29-30, 37, and 39-44 under 35 U.S.C. § 102(e) as being anticipated by Wang in view of evidence given in *Hawley's*, the Examiner alleges that Wang teaches each of the elements of the pending claims except for the non-volatile solvent as the Examiner alleges that "[t]here is no requirement that the ink comprise non-volatile solvent. Examiner's Answer, pages 4-5. However, the Examiner then argues that paragraph [0047] of Wang teach about 10 wt% of

tetraethylene glycol and other humectants that are non-volatile cosolvents that fall within the range of claims 13 and 27. Examiner's Answer, page 12.

4. In response to Appellants' arguments regarding encapsulated pigments, the Examiner responds that Wang discloses 3 broad classes of pigments, one of which is encapsulated pigments and that the dispersants would necessarily encapsulate pigments. Examiner's Answer, page 49-50.

5. In response to Appellants' arguments that the Examiner has not shown the specific elements of claims 41-44, the Examiner argues that the Examiner the density range of claims 41 and 43 "is so broad as to encompass all polymer densities the examiner has ever seen . . . ." Examiner's Answer, page 51. Additionally, the Examiner argues that the as the surface of the polymers would be ionic, for those having acid groups, the surface would be dielectric, and would be expected to be low, within the levels claimed (claims 42, 44). Examiner's Answer, page 51.

6. In response to Appellants' argument that the Examiner is relying on inherency to establish the present 102 rejection, the Examiner argues that inherency case law does not apply as "[n]o modification of the prior art is needed . . . ." Examiner's Answer, page 51. The Examiner alleges that "[t]he above rejection does not contain too much picking and choosing for an anticipation rejection." Examiner's Answer, page 51.

7. In rejecting claims 12-16, 23, 25-30, 37, and 39-44 under 35 U.S.C. § 103(a) as being obvious over Wang in view of evidence given in *Hawley's*, the Examiner alleges that Wang teaches all of the elements contained in the claims except for the non-volatile solvent, which the Examiner considers new matter. Examiner's Answer, pages 12-13. However, the Examiner then argues that paragraph [0047] of Wang teach about 10 wt%

of tetraethylene glycol and other humectants that are non-volatile cosolvents that fall within the range of claims 13 and 27. Examiner's Answer, page 20.

8. In response to Appellants' argument that Wang does not teach all the elements, the Examiner argues the elements are taught, no hindsight was used, and that the disclosure of Wang is not limited to the examples. Examiner's Answer, page 53. Regarding claims 41-44, the Examiner renews the previous arguments (see paragraph no. 5 above). Examiner's Answer, page 53.

9. In response to Appellants' arguments that Wang does not teach the non-volatile solvent ranges as recited in claims 14 and 28, the Examiner argues that paragraph [0045] of Wang encompasses such ranges. Further, the Examiner argues that such ranges merely provide a predictable result which has not been rebutted by Appellants. Examiner's Answer, page 54.

10. In rejecting claims 12-16, 18, 23, 25-30, 32, 37, and 39-44 under 35 U.S.C. § 103(a) as being obvious over Wang in view of Miyabayashi, the Examiner alleges that Wang teaches all of the elements of the claims, except for the specific amount of crosslinking monomer. Examiner's Answer, page 33. The Examiner then cites to Miyabayashi as teaching the specific amount of crosslinking monomer. Examiner's Answer, page 33.

11. In response to Appellants' arguments, the Examiner relies upon the previous arguments as outlined above.

12. In rejecting claims 12-15, 18, 23, 25-29, 32, 37, and 39-44 under 35 U.S.C. § 103(a) as being obvious over Kubota in view of *Hawley's* and either Kato or Moffatt, the Examiner alleges that Kubota teaches all of the elements of the claims, except that

Kubota does not teach the use of a thermal ink-jet printer. Examiner's Answer, page 37.

The Examiner then cites to Kato or Moffatt, which teaches the use of a thermal ink-jet printer. Examiner's Answer, page 37.

13. In response to Appellants' arguments that Kato explicitly discloses difficulties for thermal printing, the Examiner argues that the difficulties listed in Kato have been overcome in the art and that Appellants have not shown that the inks of Kubota could not be thermally printed. Examiner's Answer, page 56. Regarding claims 41-44, the Examiner argues that the claimed densities and dielectric constants would be expected of the materials. Regarding claims 13-14 and 27-28, the Examiner argues that the ranges of the non-volatile solvent would be predictable absent unexpected results. Examiner's Answer, page 56.

14. In rejecting claims 12-15, 18, 23, 25-29, 32, 37, and 39-44 under 35 U.S.C. § 103(a) as being obvious over Kubota in view of *Hawley's* and either Kato and Moffatt and further in view of Miyamoto or Wang, the Examiner argues that Kubota in view of *Hawley's* and either Kato and Moffatt teach all of the elements of the claims, except that the combination does not teach a silicone surfactant or fluorine surfactant. The Examiner then cites to Miyamoto or Wang as teaching the use of such a surfactant.

15. In response to Appellants' arguments, the Examiner relies upon the previous arguments as outlined above.

B. The 112 Rejection

Appellants wish to briefly address the 112, first paragraph, rejection. While the Examiner has alleged that the Appellants have relied upon disclosure that is not directed towards non-volatile solvents, Appellants refute such an assertion. Specifically, Appellants note that Appellants explicitly addressed this issue in Appellants' specification by defining all ranges and sub-ranges for all concentrations. Page 6, lines 1-13. Specifically, the specification defines all ranges to include all sub-ranges (and uses 0.1 wt% as an endpoint). Page 6, lines 3-8. Further, the specification applies the above sub-ranges to ranges reciting one numerical value, stating "[f]or example, a range recited as 'less than 5 wt%' should be interpreted to include all values and sub-ranges between 0 wt% and 5 wt%." Page 6, lines 10-11. Appellants submit that such disclosure defines "less than" to include the specific subrange as currently claimed and note that the definition applies to all concentrations including non-volatile co-solvents.

In light of the above, Appellants respectfully request that the Board overturn the present 112 rejection.

C. Rejections citing Wang

*i. 102 Rejection*

The primary difference between the Appellants' position and the Examiner's position is whether Wang teaches each and every element of the claimed invention. Appellants have consistently argued throughout prosecution that Wang does not teach Appellants' invention in as complete detail as claimed; rather, the Examiner



relies upon picking and choosing in an attempt to establish the presently claimed invention.

Appellants note that the Examiner has not argued that his argument does not rely upon picking and choosing; rather, the Examiner states that “[t]he above rejection does not contain too much picking and choosing for an anticipation rejection.” Examiner’s Answer, page 51. Appellants disagree. Regarding encapsulated pigments and acid-functionalized polymer colloid particulates, Appellants freely admit that such materials existed prior to the filing of the present application. However, it is the combination of these two elements, in combination with a thermal ink-jet printhead and non-porous media that is claimed here. This combination is nowhere in Wang. As such, Appellants maintain that, even considering the entirety of Wang’s teachings, the Examiner must pick and choose from discrete teachings in order to arrive at the presently claimed invention. Further, Appellants maintain that such picking and choosing provide an embodiment not disclosed in Wang. Regarding picking and choosing, the court noted in Sanofi-Synthelabo v. Apotex, Inc. that “[the] reference must clearly and unequivocally disclose the claimed [invention] or direct those skilled in the art to the [invention] without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference”) (citations omitted). 550 F.3d 1075, 1083 (Fed. 2008). Appellants maintain that the Examiner has failed to meet this standard.

Regarding claims 41 and 43, the Examiner makes a broad assertion that the elements of claims recited therein are “so broad as to encompass all polymer densities the examiner has ever seen . . . .” Examiner’s Answer, page 51. Appellants note that, if such is the case, Appellants would expect the Examiner to find a reference to provide such

polymer densities. Regardless, Appellants maintain that such elements further narrow the claim scope of the claims. More importantly, Appellants find no evidence from the present reference, or any of the prior art presently asserted, that would support the Examiner's assertion. As such, Appellants submit that the Examiner is relying on inherency, as the ranges have not been explicitly shown.

Appellants note that the Federal Circuit Court of Appeals stated “[u]nder the doctrine of inherency, if an element is not expressly disclosed in a prior art reference, the reference will still be deemed to anticipate a subsequent claim if the missing element ‘is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill’ (citations omitted). Rosco, Inc. v. Mirror Lite Co., 304 F.3d 1373, 1380 (Fed. Cir. 2002). The Court further states that “[i]nherent anticipation requires that the missing descriptive material is ‘necessarily present,’ not merely probably or possibly present, in the prior art” (citations omitted). Id. As such, Appellants submit that the appropriate standard in establishing an anticipatory rejection through inherency has been well defined by the courts. In the present case, Appellants submit that the Examiner has not shown that the polymer densities recited in the claims are necessarily present in Wang. As such, Appellants maintain that the Examiner has not shown the elements of these claims.

Regarding claims 42 and 44, the Examiner states that the surface dielectric constant would be expected to be low as the surface of the polymer would be expected to be ionic. Appellants again note that the Examiner is relying on inherency as Wang does not explicitly teach the present element. Appellants renew the above inherency case law and submit that the Examiner has not provided any reason or evidence from the cited art

that the specific surface dielectric constants recited in the present claims would necessarily be present. As such, Appellants maintain that the Examiner has failed to establish the claimed elements.

In light of the above, Appellants submit that the present reference fails to teach each and every element of the pending claim set, and therefore, Appellants respectfully request that the Board overturn the present 102 rejection.

*i. 103 Rejections*

The primary difference between the Appellants' position and the Examiner's position is whether the one skilled in the art would have arrived at the present invention based on the teachings of Wang, alone or in combination with Miyabayashi. Appellants have consistently argued throughout prosecution that Wang provides no reason to combine the present elements as claimed, and that the Examiner has relied on hindsight in making the present rejection. Appellants acknowledge that Wang is not limited to the examples. However, Appellants maintain that, even after considering Wang in its entirety, Wang does not provide a basis for each and every element as combined in the manner presently claimed.

For example, Appellants note that Wang teaches a certain mol % of hydrophilic monomers, as opposed to the present invention which recites 1 wt% to 15 wt% of an acidic monomer containing latex. Specifically, Wang explicitly lists 26 hydrophilic monomers, of which only 4 are acidic. See [0043]. Thus, there appears to be no teaching in Wang that recognizes the difference between acidic monomers and merely hydrophilic monomers, nor is there any teaching in Wang that would lead one skilled in the art to select a specific weight percentage of acidic monomers over other non-acidic monomers,

and then use the latex formed therefrom in combination with polymer-encapsulated pigments (which are not discussed in any detail other than to briefly mention their possible use). As such, Appellants maintain that Wang does not teach the presently claimed invention.

Regarding claims 14 and 28, Appellants note that the Examiner has argued that these ranges would be encompassed by the teachings of paragraph [0045]. Appellants disagree. Appellants note that paragraph [0045] discloses “about 5% to about 60% of water miscible organic solvent” while the present claims recite “wherein the liquid vehicle further comprises a non-volatile co-solvent in an amount of from 0.1 wt% to 2 wt%.” Appellants note that, not only does Wang fail to specific non-volatile solvents, Wang does not teach the presently recited range. While Appellants note that the Examiner has alleged that such a range would be predictable, Appellants maintain that Wang does not recognize the specific use of non-volatile co-solvents, let alone the effect of such solvents in the present system and method as claimed. To be clear, Appellants submit that one skilled in the art would not provide Appellants’ claimed ink-jet ink with Appellants other claimed system components, or Appellants’ method, based on the teachings of Wang. Additionally, Appellants note that Miyabayashi does not cure the above deficiencies, nor has the Examiner alleged such.

In light of the above, Appellants submit that the present combination is improper and does not teach the presently claimed invention. Therefore, Appellants respectfully request that the Board overturn the present 103 rejections.

D. Rejections citing Kubota

The primary difference between the Appellants' position and the Examiner's position is whether the combination of references provides the combination of elements as recited in Appellants' system or Appellants' method steps. Appellants have consistently argued throughout prosecution that the present combination of references do not provide each element as presently combined in Appellants' system or method.

Specifically, Appellants submit that Kubota fails to disclose printing of an ink-jet ink including polymer-encapsulated pigment colorant and acid-functionalized polymer colloid particulates dispersed in a liquid vehicle having a volatile co-solvent, where the image is heated after printing. For example, the ink composition referred in the rejection (Ink 4, Table F2) was not subjected to heating. Conversely, the only compositions where heating was utilized (Ink composition A, Color Ink Set A) did not comprise polymer-encapsulated pigments—rather, the pigments and dispersants were combined by mere mixing. See [0241]. These examples in Kubota provide no teaching, therefore, of the combination of elements claimed in the present independent claims 12 and 26. Kato does not remedy this deficiency and therefore the combination does not teach each and every element, and therefore fails to sustain a *prima facie* case of obviousness.

Even though the Examiner argues that one must look at what the reference teaches as a whole, including non-preferred portions, Appellants maintain that the reference as a whole, including non-preferred portions, do not teach the combination of elements as presently claimed. Appellants submit that Kubota discloses thousands of possible combinations and that the Patent Office has provided no reason for one skilled in

the art to pick the Appellants' present combination, if possible, absent the Appellants' present disclosure.

Additionally, Appellants maintain that Kato's discloses difficulties with ink-jetting, including regulating thermal properties of specific heat, thermal expansion coefficient, and thermal conductivity. Col. 26, lines 25-28. Appellants note that Kato does not deal with the combination of the ink components in a single fluid, as does the present invention. Appellants maintain that one of ordinary skill in the art would have no reason to combine the inks of Kubota with the thermal ink-jet architecture briefly noted in Kato. Additionally, Appellants submit that Moffatt does not provide any teachings contrary to Kato.

Appellants maintain that the lack of disclosure regarding thermal printing in Kubota would not lead one skilled in the art to believe that thermal ink-jet would be implied, but quite the opposite. In other words, one skilled in the art would know how difficult thermal ink-jet printing is and would most likely conclude that such a broad range of compositions as disclosed in Kubota would more likely be piezo ink-jettable. In other words, it is generally understood that thermal ink-jet inks can be jetted by piezo means, but the reverse is not always true. Appellants maintain that the Examiner has not shown that one skilled in the art would be led to the presently claimed system and method based on the teachings of the present references.

In light of the above, Appellants submit that the present combination is improper and does not teach the presently claimed invention. Therefore, Appellants respectfully request that the Board overturn the present 103 rejections.

CONCLUSION

Appellants respectfully submit that the claims on appeal set forth in the Appendix of Appellants' Appeal Brief are patentably distinct from the asserted prior art references. Particularly, none of the asserted combinations of references teach each and every element of the claimed invention.

For these reasons, Appellants respectfully request that the Board of Appeals reverse the rejections and remand the case to the Examiner for allowance.

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Dated this 13<sup>th</sup> day of August, 2010.

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